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VIDAS, ARRETT & STEINKRAUS, P.A. 6109 BLUE CIRCLE DRIVE SUITE 2000 MINNETONKA, MN 55343-9185			PICO, ERIC E	
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			3654	

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/822,547

Applicant(s)

MOLNAR ET AL.

Examiner

Eric Pico

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-14 and 16-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14, 16-34 and 38-41 is/are rejected.
- 7) ☒ Claim(s) 35-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/09/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gear box claimed in claims 9, 17, 18, 20 25, the safety brake located at an opposite end of the spiral drive element from said motor claimed in claim 28, and a safety brake located between said motor and said drive element claimed in claim 32 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 9 objected to because of the following informalities: The phrase "a speed suitable from producing an acceptable linear speed for said drive" is improper.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. **Regarding claim 10**, it is indefinite how the motor's predetermined output speed and the preselected pitch of the spiral threads regard to the speed of rotation of the drive element and the tooth spacing to drive the carriage along the rack at a predetermined speed.

6. **Regarding claim 11**, it is indefinite what a reasonable factor of safety encompasses. Furthermore, it is also indefinite what element, be it the track teeth, the lift device, or the spiral drive threads the factor of safety pertains to. The claim is also

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unclear whether or not this safety factor was determined with a track tooth design load of 50 pounds stated on Page 7, Line 11-13.

7. **Regarding claim 12**, it is indefinite what element, be it the track teeth, the lift device, or the spiral drive threads the factor of safety pertains to. The claim is also unclear whether or not this safety factor was determined with a track tooth design load of 50 pounds stated on Page 7, Line 11-13.

8. **Regarding claim 13**, it is indefinite what materials have a low coefficient of friction due to the fact that it is the combination of materials that create a coefficient of friction. Furthermore, it is indefinite what encompasses a low coefficient of friction.

9. **Regarding claim 14**, it is indefinite what materials have a coefficient of friction between 0.03 and 0.18 due to the fact that it is the combination of materials that create a coefficient of friction.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim(s) 1-4, 6-14, 16, 20-24, 26-34, and 38-41 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Grass DE Publication No. 3504854 in view of Paterson et al. U.S. Patent No. 5803437.

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12. **Regarding claim 1**, Grass discloses a spiral drive element 32, 37 having an axis of rotation, a single rack 33, 38, 43 having a base and a plurality of teeth extending from the base wherein each tooth has a thrust surface sized and shaped to be engaged by the spiral drive element 32, 37, the base having a reinforcing element, in its broadest reasonable interpretation members 13, 14 act as reinforcing elements, and the rack 33, 38, 43 having a longitudinal axis parallel to the axis of rotation, a motor 27 coupled to the spiral drive element 32, 37 for rotating the spiral drive element 32, 37, and a movable carriage 15 having wheels 24, 25, the motor 27 being mounted onto the carriage 15, wherein upon the spiral drive element 32, 37 rotating, one of the spiral drive element 32, 37, and the rack 33, 38, 43 moves relative to the other along the longitudinal axis in a lift direction or a lower direction.

13. Grass is silent concerning a plastic spiral drive element and a single plastic rack.

14. Paterson et al. teaches a worm gear wheel and reduction gearing member made from plastic (Column 2, Lines 1-9).

15. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and single rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

16. Furthermore, it would have also been obvious to one of ordinary skill in the art at the time of the invention was made to manufacture the spiral drive element and teeth from plastic, since it has been held to be within the general skill to select a known

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material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

17. **Regarding claim 2**, Grass discloses the spiral drive element 32, 37 moves and said rack 33, 38, 43 is stationary

18. **Regarding claim 3**, Grass discloses the spiral drive element 32, 37 includes between one and twelve generally spiral drive threads, each of the drive threads engaging at least one of the rack teeth.

19. **Regarding claim 4**, Grass discloses at least one of the spiral drive threads engages at least two teeth on the rack 33, 38, 43 at once.

20. **Regarding claim 6**, Grass discloses the carriage 15 includes a plurality of wheels 24, 25 and the rack 33, 38, 43 is fixed to a rail 11, 12 by the base and wherein the rail 11, 12 includes wheel guides to guide the wheels 24, 25 and thereby the carriage along the rail.

21. **Regarding claim 7**, Grass discloses each of the teeth includes a thrust surface sized and shaped to engage at least one of the spiral drive threads of the spiral drive element 32, 37.

22. **Regarding claim 8**, Grass discloses the rack 33, 38, 43 includes teeth that are spaced apart by a distance "a" and the number of teeth passed per revolution of the spiral drive element 32, 37 is determined by the number of threads on the spiral drive element 32, 37.

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23. It is inherent with the following components the speed of the movement along the longitudinal axis is proportional to the number of spiral drive threads as well as the spacing of "a" the teeth.

24. **Regarding claim 9**, Grass is silent concerning a gearbox to operatively couple the motor to the spiral drive element, whereby the spiral drive element is rotated at a speed suitable for producing an acceptable linear speed for the drive element along the track.

25. Having a gearbox to operatively couple a motor to a spiral drive element is notoriously old and well known in the art to provide the desired output of the motor.

26. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to operatively couple the motor to the spiral drive element disclosed by Grass with a gearbox to rotate the spiral drive element at a speed suitable for producing an acceptable linear speed for the drive element along the track.

27. **Regarding claim 10**, as best interpreted, Grass discloses the motor 27 has a predetermined output speed, and the spiral threads of the spiral drive element 32, 37 have a preselected pitch, thus determining the speed of rotation of the drive element 32, 37 and the tooth spacing to drive the carriage 15 along the rack 33, 38, 43 at a predetermined speed.

28. **Regarding claim 11**, Grass discloses a linear drive has a predetermined load capacity, and sufficient number of spiral drive threads are provided to permit enough teeth to be simultaneously engaged to support the load capacity together with a reasonable factor of safety.

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29. It is inherent the claim is met due to the fact that an unreasonable factor of safety would yield a nonfunctioning apparatus.

30. **Regarding claim 12**, Grass is silent concerning the lifting device having a factor of safety of at least 1.5.

31. It would have been obvious to one of ordinary in the art at the time of the invention was made to create a lifting device with a factor of safety of at least 1.5, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

32. Furthermore, the equivalent structure of Grass DE Publication No. 3504854 in view of Paterson et al. U.S. Patent No. 5803437 would be capable of yielding a factor of safety of at least 1.5.

33. **Regarding claim 13**, Grass discloses the spiral drive element 32, 37 and the teeth are selected from materials having a low coefficient of friction.

34. It is inherent the claim is met due to the fact that a high coefficient of friction would yield a nonfunctioning apparatus.

35. **Regarding claim 14**, Grass is silent concerning elements having a coefficient of friction is between 0.03 and 0.18.

36. It would have been obvious to one of ordinary in the art at the time of the invention was made to have a coefficient of friction between the spiral drive element and the teeth to be between 0.03 and 0.18, since it has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

37. Furthermore, the equivalent structure of Grass DE Publication No. 3504854 in view of Paterson et al. U.S. Patent No. 5803437 would be capable of having a coefficient of friction is between 0.03 and 0.18.

38. **Regarding claim 16**, Grass is silent concerning the spiral drive thread being made from oil impregnated plastic.

39. Paterson et al. further teaches a spiral drive thread being made from oil impregnated plastic (Column 2, Lines 1-9).

40. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive thread disclosed by Grass from oil impregnated plastic taught by Paterson et al. to provide a self lubricating surface and reduce friction.

41. Furthermore, it would have also been obvious to one of ordinary in the art at the time of the invention was made to manufacture the spiral drive thread from oil impregnated plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

42. **Regarding claim 20**, Grass discloses a drive device for lifting loads comprising a moveable carriage 15 having wheels 24, 25, a motor 27 carried by the carriage 15, the motor 27 having an output shaft, a threaded spiral drive element 32, 37 attached to and driven by an output shaft, and a single fixed rack 33, 38, 43 having teeth sized and shaped to be engaged by the threaded spiral drive element 32, 37, the rack 33, 38, 43

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being reinforced, wherein upon the motor 27 being activated the spiral drive element 32, 37 drives the carriage 15 longitudinally along the rack 33, 38, 43.

43. Grass is silent concerning a gearbox attached to the output shaft to reduce a speed of revolution transmitted by the motor, such gearbox being configured for maximum efficiency, a plastic threaded spiral drive element, and a single plastic fixed rack.

44. Paterson et al. teaches a worm gear wheel and reduction gearing member made from plastic (Column 2, Lines 1-9).

45. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and single rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

46. Having a gearbox to operatively couple a motor to a spiral drive element is notoriously old and well known in the art to provide the desired output of the motor.

47. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach the output shaft disclosed by Grass with a gearbox configured for maximum efficiency to rotate the spiral drive element at an efficient speed suitable for producing an acceptable linear speed for the drive element along the track.

48. **Regarding claim 21**, Grass discloses the fixed rack 33, 38, 43 and the threaded spiral drive element 32, 37 are made from lightweight materials.

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49. It is inherent the claim is met due to the fact that a heavy materials would yield a nonfunctioning apparatus.

50. **Regarding claim 22**, Grass is silent concerning the fixed rack and the threaded spiral drive element are each made from different types of plastic.

51. Paterson et al. teaches a worm gear wheel and reduction gearing member each made from different types of plastic (Column 2, Lines 1-9).

52. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and single rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

53. Furthermore, it would have also been obvious to one of ordinary in the art at the time of the invention was made to manufacture the fixed rack and the threaded spiral drive element from plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

54. **Regarding claim 23**, Grass discloses least one thread of the threaded spiral drive element 32, 37 is sized and shaped to engage more than one tooth of the rack 33, 38, 43 to distribute the load being lifted.

55. **Regarding claim 24**, Grass discloses the spiral drive element 32, 37 includes more than one thread to simultaneously engage more than one tooth of the rack 33, 38, 43 to distribute the load being lifted between the teeth being engaged.

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56. **Regarding claim 26**, Grass is silent concerning a safety brake for the drive element, the safety brake having a braking force which increases with increased load.

57. Paterson et al. teaches a safety brake, shown in Figure 9, for the drive element 28, the safety brake having a braking force, which increases with increased load.

58. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

59. **Regarding claim 27**, Grass is silent concerning a safety brake positioned in a load-bearing portion of the drive element.

60. Paterson et al. teaches a safety brake, shown in Figure 9, positioned in a load-bearing portion of the drive element 28.

61. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

62. **Regarding claim 28**, Grass is silent concerning a safety brake co-axial with the spiral drive element and is located at an opposite end of the spiral drive element from the motor.

63. Paterson et al. teaches a safety brake, shown in Figure 9, co-axial with the spiral drive element 28 and is located at an opposite end of the spiral drive element from a motor 14.

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64. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

65. **Regarding claim 29**, Grass is silent concerning a safety brake being a cone brake having a conical braking element contacting a conical braking surface.

66. Paterson et al. teaches a safety brake being a cone brake, shown in Figure 9, having a conical braking element 70 contacting a conical braking surface 42.

67. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

68. **Regarding claim 30**, Grass is silent concerning a safety brake including a one way bearing, the one way bearing freely turning in the lift direction but not turning in the lower direction.

69. Paterson et al. teaches a safety brake, shown in Figure 9, including a one way bearing 82 the one way bearing 82 freely turning in the lift direction but not turning in the lower direction.

70. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

71. **Regarding claim 31**, Grass is silent concerning a safety brake including a one way bearing positioned to cause a conical braking element to slip against a conical braking surface in the lower direction.

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72. Paterson et al. teaches a safety brake, shown in Figure 9, including a one way bearing 82 positioned to cause a conical braking element 70 to slip against a conical braking surface 42 in the lower direction.

73. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

74. **Regarding claim 32**, Grass is silent concerning a safety brake located between the motor and the drive element, the safety brake having a braking force which increases with increased load.

75. Paterson et al. teaches a safety brake, shown in Figure 9, having a braking force which increases with increased load.

76. It would have been obvious to one of ordinary skill in the art at the time of the invention to locate a safety brake as taught by Paterson et al. between the motor and the drive element disclosed by Grass to provide a means for braking the apparatus.

77. **Regarding claim 33**, Grass discloses the fixed rack is comprised of a plurality of sections, each of the sections having a base and a plurality of teeth extending from the base, each tooth including a thrust surface sized and shaped to have sliding contact with a thread from a worm gear, the body further including a reinforcing element.

78. Grass is silent concerning each of the sections comprising a plastic molded body.

79. Paterson et al. teaches a worm gear wheel and reduction gearing member made from plastic (Column 2, Lines 1-9).

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80. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture each of the plurality of sections of the fixed rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

81. **Regarding claim 34**, Grass discloses the reinforcing element for the section provides dimensional stability to the body under load.

82. It would have also been obvious to one of ordinary in the art at the time of the invention was made to make the reinforcing element disclosed by Grass a metal reinforcing element, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

83. **Regarding claim 38**, Grass discloses a device for moving loads comprising a single rail 11, 12, a movable carriage 15 having wheels 24, 25, the wheels 24, 25 engaging the rail 11, 12 to keep the carriage 15 on the rail 11, 12, wherein the rail 11, 12 guides the carriage along its path, a motor 27 carried by the carriage 15, the motor 27 having an output shaft, a spiral drive element 32, 37, and a rack 33, 38, 43 fixed to the rail 11, 12, the rack 33, 38, 43 having teeth having angled thrust surfaces sized and shaped to be in sliding contact with the threaded spiral drive element 32, 37, a base and a reinforcing element 13, 14 in the base, wherein upon the motor 27 being activated the spiral drive element 32, 37 moves the carriage 15 along the rack 33, 38, 43.

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84. Grass is silent concerning a gearbox attached to the output shaft to reduce a speed of revolution transmitted by the motor, a plastic spiral drive element, plastic molded teeth, a plastic molded base, and a metal reinforcing element.

85. Having a gearbox attached to the output shaft to reduce a speed of revolution transmitted by the motor is notoriously old and well known in the art to provide the desired output of the motor.

86. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach the output shaft disclosed by Grass with a gearbox to rotate the spiral drive element at a speed suitable for producing an acceptable linear speed for the drive element along the track.

87. Paterson et al. teaches a worm gear wheel and reduction gearing member made from plastic (Column 2, Lines 1-9).

88. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and single rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

89. Furthermore, it would have also been obvious to one of ordinary skill in the art at the time of the invention was made to manufacture the spiral drive element and teeth from plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

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90. It would have also been obvious to one of ordinary in the art at the time of the invention was made to make the reinforcing element disclosed by Grass a metal reinforcing element, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416..

91. **Regarding claim 39**, Grass discloses a device for moving loads comprising, a single rail 11, 12, a movable carriage 15 having wheels 24, 25, the wheels 24, 25 engaging the rail 11, 12 to keep the carriage 15 on the rail 11, 12, wherein the rail 11, 12 guides the carriage 15 along a path, a motor 27 carried by the carriage 15, the motor 27 having an output shaft, a spiral drive element 32, 37 attached to and driven by an output shaft, the spiral drive element 32, 37 having a number of individual spiral drive threads, and a sectional rack 33, 38, 43 fixed to the rail 11, 12 each of the rack sections 33, 38, 43 having teeth each tooth having a thrust bearing surface, a base and a reinforcing element 13, 14 in the base, wherein the thrust bearing surface is sized and shaped to match the spiral drive thread to distribute a load of the drive thread across the thrust bearing surface to reduce point loading on the tooth and the spiral drive thread.

92. Grass is silent concerning a gearbox attached to the output shaft to reduce a speed of revolution transmitted by the motor, a plastic spiral drive element, plastic molded teeth, a plastic molded base, and a metal reinforcing element.

93. Having a gearbox attached to the output shaft to reduce a speed of revolution transmitted by the motor is notoriously old and well known in the art to provide the desired output of the motor.

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94. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach the output shaft disclosed by Grass with a gearbox to rotate the spiral drive element at a speed suitable for producing an acceptable linear speed for the drive element along the track.

95. Paterson et al. teaches a worm gear wheel and reduction gearing member made from plastic (Column 2, Lines 1-9).

96. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and single rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

97. Furthermore, it would have also been obvious to one of ordinary skill in the art at the time of the invention was made to manufacture the spiral drive element and teeth from plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

98. It would have also been obvious to one of ordinary in the art at the time of the invention was made to make the reinforcing element disclosed by Grass a metal reinforcing element, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

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99. **Regarding claim 40**, Grass discloses a lift drive device comprising a single rail 11, 12, a rack 33, 38, 43 retained in the rail 11, 12, the rack 33, 38, 43 having a reinforced base and a plurality of teeth extending from the base, wherein each tooth has a thrust surface sized and shaped to be engaged by a spiral drive element 32, 37, the reinforced base being sized and shaped to permit a limited amount of deformation under preloading wherein the rack 33, 38, 43 deforms less under live loads, and a wheeled carriage 15 moveable along the rail 11, 12, the moveable carriage 15 including a spiral drive element 32, 37 having an axis of rotation and being sized, shaped, and positioned to engage the teeth of the rack 33, 38, 43, and a motor 27 to rotate the spiral drive element 32, 37, wherein upon the spiral drive element 32, 37 rotating the wheeled carriage 15 advances along the rack 33, 38, 43 and the rail 11, 12.

100. Grass is silent concerning a plastic molded rack, plastic spiral drive element.

101. Paterson et al. teaches a worm gear wheel and reduction gearing member made from plastic (Column 2, Lines 1-9).

102. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and single rack disclosed by Grass from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus as well as provide a cost effective apparatus.

103. Furthermore, it would have also been obvious to one of ordinary skill in the art at the time of the invention was made to manufacture the spiral drive element and teeth from plastic, since it has been held to be within the general skill to select a known

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material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

104. **Regarding claim 41**, Grass is silent concerning a safety brake for the drive element.

105. Paterson et al. teaches a safety brake, shown in Figure 9, for a drive element 28.

106. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a safety brake as taught by Paterson et al. for the drive element disclosed by Grass to provide a means for braking the apparatus.

107. Claim(s) 17-19, 25 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Grass DE Publication No. 3504854 in view of Paterson et al. U.S. Patent No. 5803437 as applied to claim 16 above, and further in view of Strong et al. U.S. Patent No. 6616567.

108. **Regarding claim 17**, Grass is silent concerning the gear box providing a speed reduction of between about 8 to 1 and 60 to 1.

109. Strong et al. teaches a gear box 10 providing a speed reduction of between about 8 to 1 and 60 to 1.

110. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gear box taught by Strong et al. to the motor and spiral drive element disclosed by Grass to provide speeds according to the conditions.

111. **Regarding claim 18**, Grass is silent concerning the gear box and spiral drive having a combined efficiency of between 35% to 88%.

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112. It would have been obvious to one of ordinary in the art at the time of the invention was made to provide the gear box and spiral drive with a combined efficiency of between 35% to 88%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum, or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

113. Furthermore, the equivalent structure of Grass DE Publication No. 3504854 in view of Paterson et al. U.S. Patent No. 5803437 and Strong et al. U.S. Patent No. 6616567 would be capable of having a combined efficiency of between 35% to 88%.

114. **Regarding claim 19**, Grass is silent concerning the worm drive element and the rack have an efficiency of between 70% and 86%.

115. It would have been obvious to one of ordinary in the art at the time of the invention was made to provide the worm drive element and the rack with an efficiency of between 70% and 86%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

116. Furthermore, the equivalent structure of Grass DE Publication No. 3504854 in view of Paterson et al. U.S. Patent No. 5803437 and Strong et al. U.S. Patent No. 6616567 would be capable of providing the worm drive element and the rack with an efficiency of between 70% and 86%.

117. **Regarding claim 25**, Grass is silent concerning the gear box provides a speed reduction of between about 20 to 1 and 30 to 1.

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118. Strong et al. teaches a gear box 10 providing a speed reduction of between about 20 to 1 and 30 to 1.

119. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gear box taught by Strong et al. to the motor and spiral drive element disclosed by Grass to provide speeds according to the conditions.

Allowable Subject Matter

120. Claims 35, 36, and 37 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

121. Applicant's arguments filed 03/16/2006 have been fully considered but they are not persuasive.

122. Regarding applicant's argument a person in the skilled in the art would understand that the speed of the carriage along the rack is determined by the speed of rotation of the motor and the pitch of the threads of the spiral drive element is considered however claim 10 as written does not state, "the speed of the carriage along the rack is determined by the speed of rotation of the motor and the pitch of the threads of the spiral drive element." Furthermore, the speed of the carriage along the rack being determined by the speed of rotation of the motor and the pitch of the threads of the

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spiral drive element is a known structural relationship and does not further limit the structure of the apparatus.

123. Regarding applicant's argument the expression "reasonable safety factor" is understandable to skilled in the art has been fully considered but is not persuasive. The term "reasonable" is a relative term that is not understandable to one skilled in the art.

124. Regarding applicant's argument one of ordinary skill in the art would understand how efficiency of the gear box and spiral drive are calculated has been fully but is not persuasive.

125. In response to applicant's argument that Paterson et al. U.S. Patent No. 5803437 is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Paterson et al. is relied upon for the teachings of a spiral element and teeth made from plastic suitable for translating loads such as basketball stops, or other gymnasium equipment, which is equivalent to the weight of a single individual and strong and durable to prevent failure resulting in the drop of the load thus causing harm.

126. Regarding applicant's argument ball bearings are not wheels has been fully considered but is not persuasive. Wheels are defined as "something resembling such a disk or ring in appearance or movement or having a wheel as its principal part or characteristic" in Dictionary.com's on-line dictionary.

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127. In response to applicant's argument that Blanchette et al. U.S. Patent No. 4051923, would not be motivated to combine the teaching of slide-bars or ball bearings, so as to add them to the notched legs 14 of Blanchette et al., let alone, take the further inventive step of replacing the slide-bars or ball bearings and replace them with wheels, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Pico whose telephone number is 571-272-5589. The examiner can normally be reached on 6:30AM - 3:00PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katherine Matecki can be reached on 571-272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EEP



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